

REMARKS

Claims 1-47 are pending.

The Examiner rejected Claims 1-6, 14-28 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent 6,535,493 ("Lee") in view of U.S. Patent Application Publication 2003/0091011 ("Roberts"). The Examiner states:

As per claims 1-6, and 14-28 Lee discloses a method for routing information to a mobile unit in a data communication system having a home network **[first subnet]** and a remote network **[second subnet]**, wherein a content stream to a mobile node in a first subnet with a first caching proxy in response to a request **[inherent in the art]**; relocating the mobile node to a second subnet **[the mobile unit may roam from the home network to the remote network]**; initial act of notifying the first caching proxy of the relocation of the mobile node **[registering the mobile unit with the home agent]**.

Lee discloses the claimed invention, but fails to specifically teach handling off the request to serve the streaming content from the first caching proxy to a second caching proxy by initiating a cache query to identify the second caching proxy as a function of the location of mobile node in the second subnet; and continuing to serve the request for the content stream to the mobile node with the second caching proxy.

Roberts teaches handing off the request to serve the streaming content from the first caching proxy to a second proxy by initiating a cache query to identify the second caching proxy as a function of the location of the mobile node in the second subnet; and continuing to serve the request for the content stream to the mobile node with the second caching proxy **[when a user terminal changes its affiliation from a first access point to a second access point (relocating from a first subnet to a second subnet) a node continue to send data packets to the first access point until the respective address resolution updated and then continue sending the packets to the second access point (see page 3, paragraph 0028; also see claims 19 and 20)]** in order to have an efficient system for handling mobility of the user terminals between access points nodes with reduce overhead and packet loss **[see page 2, paragraph 0019 and page 3, paragraph 0022 and 0025]**.

Accordingly, it would have been obvious to one having ordinary skill in the art at the time of the current invention to use handoff as being taught by Roberts into Lee's mobile internet communication system in order to have an efficient system for handling mobility of the user terminals between access points nodes with reduce overhead and packet loss.

Applicants respectfully traverse the Examiner's rejection. Claim 1 recites a method in which two or more caching proxies together serve a request for a content stream of a mobile node, as the mobile node relocates between two or more subnets:

1 A method of managing cacheable streaming content, the method comprising:

a) serving a content stream to a mobile node in a first subnet with a first caching proxy in response to a request;

b) in response to the mobile node relocating to a second subnet, handing off the request to serve the streaming content from the first caching proxy to a second caching proxy; and

c) continuing to serve the request for the content stream to the mobile node with the second caching proxy.

(emphasis added)

Applicants respectfully traverse the Examiner's rejection. As taught in Roberts' paragraphs 51-53, Roberts teaches changing the associating the IP address of the mobile node 118 from one access point (104) to another access point (106). However, Roberts does not teach serving the streaming content from a second caching proxy, as recited in Claim 1:

[0051] Hence, other nodes (IAPs 104 and 108, media server 120, DNS server 122 and IP gateway router 124) will now associate the IP address of the mobile node 118 to the MAC address of the new IAP 106....

* * *

[0053] ... For example, as shown in FIG. 9, the media server 120 (router R1) has received and processed the

gratuitous ARP, and is thus sending packets intended for mobile node 118 to the new IAP 106 with which mobile node 118 has become affiliated. ...

(emphasis added)

As explained in Applicants' specification, at paragraph 24, serving from a second caching proxy provides advantage because the second caching proxy is in close proximity of the mobile node :

The cache handoff system directs a cache handoff of streaming content currently being served to a mobile node as the mobile node roams within the network architecture. The cache handoff allows the uninterrupted supply of streaming content from a cache in close proximity to the mobile node. Accordingly, traffic within the network is minimized while delays, congestion and degradation of the quality of service may be avoided.

(emphasis added)

Accordingly, as Roberts teach only updating only the IP address association of a mobile node from a first access point to a second access point, while the source of the content data packets remains the same, the benefits of having the content server in a close proximity with the mobile node is not achieved. Accordingly, Applicants respectfully submit that Claim 1 and dependent Claims 2-6 are allowable over Lee, in view of Roberts.

Similarly, Claims 6, 14, 22 and 31 each also recite supplying content from a second caching proxy server:

6. (Original) A method of managing cacheable streaming content, the method comprising:

a) supplying a content stream with a caching proxy in response to a request of a mobile node located in a first subnet;

b) caching the content stream supplied by the caching proxy;

c) handing off the request to another caching proxy when the mobile node relocates to a second subnet;

d) discontinuing caching of the content stream with the caching proxy; and

e) quantizing the fragment of the content stream cached in the caching proxy to achieve a uniform size.

14. A method of managing cacheable streaming content, the method comprising:

a) subscribing a caching proxy to a mobility status of a mobile node as a function of a request for a content stream by the mobile node and the logical proximity of the caching proxy to the location of the mobile node;

b) notifying the caching proxy that the mobile node has moved to a new location;

c) identifying a target caching proxy in close logical proximity to the new location;

d) initiating a cache handoff of the request for the content stream from the caching proxy to the target caching proxy; and

e) subscribing the target caching proxy to the mobility status of the mobile node.

22. A cache handoff system for managing cacheable streaming content requested by a mobile node within a network architecture comprising a first subnet and a second subnet, the cache handoff system comprising:

a first caching proxy operable in the first subnet to supply a content stream responsive to a request of a mobile node operable in the first subnet; and

a second caching proxy operable in the second subnet, the first caching proxy operable to initiate a cache handoff of the request to the second caching proxy following relocation of the mobile node to the second subnet, the second caching

proxy operable to seamlessly continue supply of the requested content stream as a function of the cache handoff.

31. (Previously presented) In a cache handoff system for managing cacheable streaming content requested by a mobile node within a computer network, a caching proxy serving a first portion of the computer network comprising:

a streaming content server operable to supply a content stream to the mobile node in the computer network; and

a request monitor operable (a) to receive the request from the mobile node to initiate the supply of the content stream; (b) following the mobile node relocating from the first portion of the computer network to a second portion of the computer network, to initiate a cache handoff to a second caching proxy serving the second portion of the computer network to allow the second caching proxy to continue the supply of the content stream to the mobile node; and (c) following the mobile node relocating from the second portion of the computer network to the first portion of the computer network, to receive a cache handoff from the second proxy, so as to continue a supply of a content stream then served from the second caching proxy.

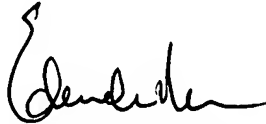
(emphasis added)

Thus, for the reasons already stated above, Claims 6, 14, 22 and 31, and dependent Claims 15-21, 23-28, 32-39 and 41 are each allowable over the combined teachings of Lee and Roberts. Reconsideration and allowance of Claims 1-6, 14-28, 31-39 and 41 are therefore requested.

The Examiner indicated allowable subject matter in Claims 7-13, 29-30, 40 and 42-47 but for their depending from a rejected base claim. In view of the reasons stated above, Applicants defer rewriting these claims in independent form until the Examiner has reconsidered the above rejection.

Therefore, Applicants believe that all pending claims (i.e., Claims 1-47) are allowable, and respectfully request their allowance. If the Examiner has any questions regarding the above, the Examiner is respectfully requested to telephone the undersigned Attorney for Applicants at 408-392-9250.

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Commissioner For Patents, P.O. Box 1450, Alexandria, VA 22313-1450 on September 27, 2004.

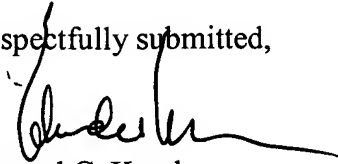


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9/27/2004

Date of Signature

Respectfully submitted,



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